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| 10/052,408 | 01/23/2002 | Kenji Kato | | 3424 |

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EXAMINER

MERCADO, JULIAN A

ART UNIT PAPER NUMBER

1745

DATE MAILED: 06/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/052,408

Applicant(s)

KATO, KENJI

Examiner

Julian Mercado

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 5-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Tajima et al. (U.S. Pat. 5,334,463).

Regarding independent claim 1 and dependent claims 5-7, Tajima teaches a fuel cell apparatus comprising a fuel cell [4] connected to a load [13], an electricity accumulator, i.e. storage cell [10] which supplies electric power to the load via a step-up circuit, i.e. DC/DC converter [8], and a control circuit [6] that causes the electricity accumulator to output to the load a difference between the required electric power and a predetermined fuel cell electric power. (col. 2 line 26 et seq., col. 5 line 30 et seq.) A fuel gas from reformer [3] supplies fuel gas from fuel bunker [1]. (col. 5 line 15-19, applies to dependent claim 8) As to dependent claim 9, a valve [2] regulates fuel supply, and as to the limitation drawn to the valve being “operated in such a manner that the fuel gas is supplied to said fuel cell at constant pressure”, this limitations have not been given patentable weight as such language is construed as a method-of-using

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limitation which fails to further limit the claim to a particular structure. Dependent claim 10 is similarly not given patentable weight, being drawn to the manner in which the fuel gas is supplied.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tajima et al. as applied to claims 1 and 5-10 above, in view of Iwasaki (U.S. Pat. 6,447,939 B1).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tajima et al. as applied to claims 1 and 5-10 above, in view of Iwasaki (U.S. Pat. 6,447,939 B1) and Fetterman (U.S. Pat. 3,753,780)

The teachings of Tajima et al. in view of Iwasaki (as it pertains to claims 2 and 4) and Iwasaki and Fetterman (as it pertains to claim 3) will be discussed in parallel.

As to independent claims 2 and 3, Tajima et al. teaches a charging circuit comprised in part by "amperemeter" [11] which functions so that "the extra output of the fuel cell is used to charge the storage cell". (col. 2 line 55-56, col. 5 line 49-58) The amperemeter is also considered to read on the switching element called for by independent claim 3.

Regarding the limitation in independent claims 2 and 3 drawn to the step-up circuit and charging circuit (claim 2) and the switching element for step-up and the switching element for

charging (claim 3) being “operated selectively”, these limitations have not been given patentable weight as such language is construed as a method-of-using limitation which fails to further limit the claims to a particular structure. Notwithstanding, it is asserted that Tajima et al. teaches maintaining the fuel cell output within a predetermined range such as an output that sufficiently matches that required by the external load. (col. 6 line 54 et seq.)

Tajima does not explicitly teach a traveling state detector. However, Iwasaki teaches detection of a traveling state of a vehicle such as indicated by the vehicle speed. (col. 7 line 6-15) Thus, the skilled artisan would find obvious to employ a traveling state detector in Tajima et al.’s invention for reasons such as enabling sufficient running performance of the fuel cell employed within a fuel cell vehicle. (col. 4 line 53 et seq., also applies to dependent claim 4)

Regarding independent claim 3, while Tajima does not explicitly teach a diode element, Fetterman teaches a diode [37] as part of an active filter means [12] of a fuel cell system. (col. 2 line 13-19) Thus, the skilled artisan would find obvious to employ a diode element in Tajima et al.’s invention for reasons such as prevention of detrimental current return to the fuel cell.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tajima in view of Iwasaki as applied to claims 2 and 4 above, and further in view of Kawatsu (U.S. Pat. 5,677,073).

The teachings of Tajima et al. and Iwasaki are discussed above.

Tajima et al. does not explicitly teach a fuel supply and fuel discharge line each with a solenoid valve. However, Kawatsu teaches solenoid valves [51, 52, 53, 54] along fuel supply and discharge lines [40] and [43], respectively. (Figure 6, col. 6 line 23-55) Regarding the

limitation drawn to the solenoid valves being turned “on and off in order to regulate the pressure of the fuel gas”, this limitation has not been given patentable weight as such language is construed as a method-of-using limitation which fails to further limit the claims to a particular structure. Notwithstanding, Kawatsu teaches that this configuration allows for the fuel cell gas to be maintained under specific flow conditions. Thus, the skilled artisan would find obvious to further modify Tajima et al. by employing fuel supply and discharge lines with corresponding solenoid valves for reasons such as precise regulation of fuel cell gas flow.

As to dependent claim 12 calling for a fuel pressure regulation valve, Kawatsu teaches a purge valve [455] disposed in the fuel supply and discharge line. (Figure 11, col. 15 line 4-16) Regarding the limitation drawn regulation of the fuel gas pressure, this limitation has not been given patentable weight as such language is construed as a method-of-using limitation which fails to further limit the claims to a particular structure. Notwithstanding, the skilled artisan would find obvious to employ a purge valve in Tajima et al.’s invention for reason such as maintaining operation safety in the fuel cell system. (line 15-16)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

A handwritten signature in black ink, consisting of a large loop followed by a series of smaller, overlapping loops.


Patricia Ryan
Supervisory Patent Examiner
Technology Center 1700